



**NATURAL RESOURCES DEFENSE COUNCIL**  
THE EARTH'S BEST DEFENSE

# Pesticides: What You Need to Know



Pesticides are designed to kill pests, but they don't stop there. People, pets, farmers, agriculture workers, and wildlife are all harmed by overuse, misuse, and even lawful use of these toxic chemicals. NRDC has a decades-long history of successfully using science and the law to reduce human exposures and environmental releases of the most harmful pesticides linked with cancers, birth defects, learning disabilities, and harm to wildlife. Our work with health professionals, environmental groups, communities, growers, and individuals has strengthened legal protections, reduced some of the dangers of pesticides, and has led to market innovations increasing the availability of non-chemical or reduced-risk pesticides for gardens, homes, pets, and crops.

## People are poisoned by pesticides

Thousands of people each year report to poison control centers and emergency care clinics after being poisoned by pesticides. While statistics on pesticide poisonings are hard to come by because EPA fails to track and document these, California does keep records. From 2000-2008 California alone had over 7,600 reported pesticide poisoning cases (individual people poisoned) resulting in almost 200 hospitalizations. About half of these were from agriculture uses, and half from non-agriculture uses such as homes, gardens, school yards, and golf courses.

## Children are more vulnerable

Children are likely to be more vulnerable to pesticide poisonings than adults because they spend more time close to the ground or floor where pesticides are applied, and their growing bodies, including the brain and reproductive organs, may be altered in long-term or permanent ways after being poisoned. These facts were identified in a 1993 report by the National Academies that concluded, "depending on dose, some pesticides can cause a range of adverse effects on human health, including cancer, acute and chronic injury to the nervous system, lung damage, reproductive dysfunction, and possibly dysfunction of the endocrine and immune systems."

## The Food Quality Protection Act helps protect kids

The National Academies report on pesticides and children's health, along with intense pressure from NRDC and others, led Congress to unanimously pass the Food Quality Protection Act (FQPA) in 1996, requiring EPA to consider harm to children when registering pesticides, and to consider risks to groups of related pesticides and not just evaluate them one-by-one. Subsequent negotiations with NRDC forced EPA to review pesticide registrations every 15 years to incorporate new science. Together, these two requirements have forced millions of pounds of the most toxic pesticides off the market and out of our homes, gardens, and food crops.

## Risks to farm children

The approximately 1 million children that live on farms, especially the children of farmworkers, come in contact with pesticides routinely. In 2004 the National Institutes of Health (NIH) Agriculture Health Study reported increased childhood cancer risk associated with occupational exposure of

the parents to pesticides.

## **Pets, pesticides and kids risks**

Many of the pet flea and tick products sold in grocery, drug and pet supply stores, even when applied as instructed on the box, can cause serious health consequences to pets and humans. Check out the Green Paws product guide to see if you are currently using a flea or tick treatment that could be harmful to your family, and to find safer options.

## **Bees**

Pesticides and bees are a deadly mix! Many pesticides on the market are classified by EPA as highly toxic to honeybees. Unfortunately, this designation means nothing more than a cautionary statement on the product label, warning people not to apply the product when bees may be foraging in the area. This is too flimsy to effectively protect bees from getting sprayed or drifted on, and doesn't work at all to address the long-term or delayed effects like sickness that comes from bringing contaminated pollen and nectar back to the hive. Commercial beekeepers lost about half their bee colonies over the last decade, a trend that would cripple America's ability to grow its own food if it continues. The causes are complex, but most experts agree that pesticides are part of the problem. NRDC has worked hard to address this problem.

## **Organophosphates**

This class of 50 pesticides was initially designed as chemical warfare agents, targeting people. Exposure to organophosphate pesticides can cause dizziness, confusion, vomiting, convulsions, numbness in the limbs, and even death. They have also been linked to developmental delays, reduced IQ, and behavioral problems in exposed children. Thanks to extensive pressure and litigation by NRDC and others, EPA has cancelled most home uses of organophosphates, reducing their annual use from about 90 million pounds to under 60 million pounds annually. But they are still allowed on crops, and one is allowed in pet flea and tick treatments.

## **Atrazine**

Atrazine is an herbicide used in large volumes in the US to keep weeds down in corn fields, golf courses, and other crops. It has been shown in animal studies to impair the immune system, reproductive organ development, and in adult men to impair sperm quality. In 2009 and 2010, the USGS analyzed results of surface water and drinking water monitoring data for atrazine and found approximately 75 percent of stream water and about 40 percent of all groundwater samples from agricultural areas contained atrazine, along with 80 percent of drinking water samples.

## **Integrated Pest Management (IPM)**

Integrated Pest Management (IPM) is a term that is used to describe pest management practices that provide effective pest control, while reducing or eliminating pesticide use. Effective IPM programs prevent pest problems from occurring in the first place, use non-chemical practices to manage pests and rely on natural systems to reduce pest pressure whenever possible. IPM is nearly always more effective than a pesticide-intensive approach because IPM focuses on addressing the underlying causes of a pest problem. By contrast, frequent pesticide use can make the pests disappear temporarily, but do little to prevent them from coming back. In agricultural systems, pesticide use can actually worsen pest pressure by killing off beneficial insects that would otherwise keep pests in check.

Click for a video about Marlene Bio Innovations, a leading developer of environmentally-responsible biopesticides and a winner of NRDC's 2011 Growing Green Awards.

One problem with IPM is that it is not defined well by regulation or markets and most pest management professionals describe themselves as IPM practitioners. NRDC works to develop regulatory and market-facing metrics and standards to help identify and reward truly effective IPM practices which reduce health risks from pesticides, while providing effective, economically viable pest control. NRDC is a co-founder of the Pesticide Risk Mitigation Engine, an on-line tool that helps farmers evaluate the risks posed by pesticides. We also helped start several IPM certifications for structural pest control professionals who manage pests in our urban environment, including GreenShield, GreenPro and EcoWise Certified.

## Recent Blog Posts from our Experts

- Pollinators find a home at the White House
- EPA on Flea Collars - Right Action, Wrong Timing
- Fleas, and Ticks, and Neurotoxins! Oh My!
- As monarch butterflies plummet, it's time to rethink the widespread use of our nation's top weedkiller
- Our Dogs, Cats, and Kids Deserve Better: NRDC Sues EPA for failing to act on Flea Collars